

SUBDIVISIONS OF PENSTEMON SECTION PENSTEMON

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The completion of a revision of *Penstemon* (sect. *Penstemon*) series *Graciles*, to be published soon, and a step-by-step revision of the remaining series now underway, requires the validation of the series names below. The previously described taxa in section *Penstemon* between species and section do not adequately express the relationships involved. Several of the series correspond to subsections in Keck (1945), however. The series may be distinguished by the following key:

KEY TO SERIES OF PENSTEMON SECTION PENSTEMON

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 - A. Leaves linear, revolute series 1. *Gairdnerani*
 - AA. At least some leaves not linear and revolute
 - B. Corollas glandular within and without, sticky when fresh
 - C. Plants shrubby; west of the Rocky Mountains . series 2. *Deusti*
 - CC. Plants herbaceous; east of the Rocky Mountains
 - series 3. *Tubaeflori*
 - BB. Corollas not glandular within, not sticky when fresh
 - D. Plants with buried caudex and creeping fibrous rootstocks
 - E. Corollas glandular without; plants of alpine regions
 - series 4. *Harbouriani*
 - EE. Corollas eglandular without; plants of desert regions
 - series 5. *Arenarii*
 - DD. Plants with aerial caudex
 - F. Corolla strongly marked with guide-lines of a deeper color, or if guide-lines absent, then the lower lip of the corolla upcurved to close the orifice; corolla floor pleated
 - G. Caudex herbaceous series 6. *Graciles*
 - GG. Caudex suffrutescent
 - H. Leaves entire
 - I. Staminode uniformly densely pubescent for half its length series 6. *Graciles*
 - II. Staminode bearded more densely at the tip or only there series 8. *Humiles*
 - HH. Leaves toothed
 - J. Plants caespitose; leaves only obscurely toothed
 - series 8. *Humiles*
 - JJ. Plants erect; leaves usually well-toothed.
 - K. Calyx 2-5 mm high; staminode included
 - series 7. *Ovati*

KK. Calyx 5-11 mm high; staminode well-exserted. series 9. *Whippleani*

FF. Corolla not strongly marked with guide-lines of a deeper color; corolla floor not strongly pleated

L. Plants usually suffrutescent at base; inflorescence often capitate; Rocky Mountains and westward

M. Delicate diploids and tetraploids series 10. *Proceri*

MM. Robust hexaploids . series 11. *Attenuati*

LL. Plants wholly herbaceous; inflorescence never capitate; east of Rocky Mountains series 12. *Penstemon*

Series 1. **Gairdnerani** (Keck) Crosswhite, stat. nov. (subsection *Gairdneranae* Keck, Amer. Midl. Nat. 23: 595. 1940). Type: *P. gairdneri* Hook., Fl. Bor. Am. 2: 99. 1838.

Series 2. **Deusti** (Keck) Crosswhite, stat. nov. (subsection *Deusti* Keck, Amer. Midl. Nat. 23: 599. 1940). Type: *P. deustus* Dougl. ex Lindl., Bot. Reg. 16: t. 1318. 1830.

Series 3. **Tubaeflori** Pennell ex Crosswhite, series nova. Caudex aerius non suffrutescens; folia lanceolata; corolla non 2-plicata, intus et extus dense glanduloso-pubescent; $2n = 32$. Type: *P. tubaeformis* Nutt., Trans. Amer. Phil. Soc. II. 5: 181. 1837.

Series 4. **Harbouriani** Rydberg ex Crosswhite, series nova. Plantae alpinae; caudex subterraneus; corolla prominenter ventre 2-plicata, extus solum glanduloso-pubescent; $2n = 16$. Type: *P. harbourii* A. Gray, Proc. Amer. Acad. 6: 71. 1862.

Series 5. **Arenarii** (Keck) Crosswhite, stat. nov. (subsection *Arenarii* Keck, Amer. Midl. Nat. 23: 605. 1940). Type: *P. arenarius* Greene, Pittosporum 1: 282. 1889.

Series 6. **Graciles** Crosswhite, series nova. Caudex aerius, non suffrutescens; folia lanceolata; corolla ventre 2-plicata, extus solum glanduloso-pubescent; staminodium a basi ad apicem dense auro-barbatum; $2n = 16$. Type: *P. gracilis* Nutt., Gen. N. Amer. Pl. 2: 52. 1818.

Series 7. **Ovati** Crosswhite, series nova. Caudex aerius, suffrutescens; folia triangularia ovata; calyx 2—5 mm. altus; corolla ventre 2-plicata, intus glabra; $2n = 16, 32$. Type: *P. ovatus* Dougl. ex Hook., Bot. Mag. 56: t. 2903. 1829.

Series 8. **Humiles** (Keck) Crosswhite, stat. nov. (subsection *Humiles* Keck, Amer. Midl. Nat. 33: 179. 1945). Type: *P. humilis* Nutt. ex Gray, Proc. Amer. Acad. 6: 69. 1862.

Series 9. **Whippleani**, series nova. Caudex aerius, suffrutescens; folia oblonga vel lanceolato-acuminata; calyx 5—11 mm. altus; corolla ventre

2-plicata, intus glabra; $2n = 16$. Type: *P. whippleanus* A. Gray, Proc. Amer. Acad. 6: 73. 1862.

Series 10. **Proceri** (Keck) Crosswhite, stat. nov. (subsection *Proceri* Keck, Amer. Midl. Nat. 33: 141—142. 1945). Type: *P. procerus* Dougl. ex R. Grah., Edinb. N. Phil. Jour. 7: 348. 1829.

Series 11. **Attenuati** Crosswhite, series nova. Plantae robustae; caudex aerius, suffrutescens; folia lanceolato-ovata vel oblonga amplexicaulia attenuata; corolla ventre non prominenter 2-plicata, intus non glanduloso-pubescent; $2n = 48$. Type: *P. attenuatus* Dougl. ex Lindl., Bot. Reg. 15: t. 1295. 1829.

Series 12. **Penstemon**. Type that of the genus and section: *P. laevigatus* Ait., Hort. Kew. 2: 361. 1789.

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REFERENCE

KECK, D. D. 1945. Studies in *Penstemon* VIII. A cytotaxonomic account of the section *Spermunculus*. Amer. Midl. Nat. 33: 128—206.

POST SCRIPT

After this manuscript was in page proof, it was found that the subsectional names published by Keck are invalid since they were published after 1 January, 1935 without Latin diagnoses. These are supplied as follows:

Series 1. Folia linearia, revoluta.

Series 2. Folia nunc linearia nunc revoluta, plantae fruticosae, corolla intus et extus glanduloso-pubescent.

Series 5. Caudex suffrutescens, folia nunc revoluta nunc linearia, corolla intus et extus glabra.

Series 8. Caudex aerius, suffrutescens, corolla, ventre 2-plicata, staminodium apice solum aurato-barbatum.

Series 10. Caudex plus minusve suffrutescens, caulis gracilis, inflorescentia verticillata et compacta.